REMARKS

Claims 8, 10, 11, 15-24, 26, 30-35, 42, 43, 45-49, 51-56, 58-60, 64-72, 74-91 and 93-99 are now pending in the above-referenced patent application. Applicants respectfully request further consideration of these claims, in view of the amendments set forth above and the following remarks.

Examiner Interview

Applicants thank the Examiner for the courtesy of an interview on October 29, 2003, during which the specification, the pending claims, and the amendments and remarks presented herein were discussed. In particular, the outstanding enablement rejection relating to claim 74 as directed to non-biological organic polymers was discussed. Applicants articulated their position that a person of ordinary skill could practice this invention in its entirety as directed to composites comprising non-biological organic polymers without undue experimentation, for the reasons more fully set forth below.

Amendments to the Specification

The specification has been amended to recite a title that is more closely related to the subject matter of the present invention, and to clarify the relationship between the various various priority applications, and to update the status of the priority applications and the related applications.

Cancelled Claims

Claim 92 has been canceled to advance the prosecution of the instant case. Applicants expressly reserve the right to refile the canceled claim, without prejudice, in a continuing application. Applicants' cancellation of this claims should not, in any way, be considered as an admission with respect to any outstanding rejection applying to such claim, and Applicants hereby expressly deny any such interpretation. Likewise, Applicants cancellation of this claim should not, in any way, be considered as a surrender of any subject matter covered by the cancelled claims or any equivalents thereof.

Amended Claims

Claim 72 has been amended, without change in the substantive scope thereof, to correct a typographical error and to clarify what Applicants regard as their invention. No new matter has been added.

Acknowledgement

Applicants acknowledge rejoinder of claims 58, 59 and 79. Applicants also acknowledge that the Office action has withdrawn the rejections under 35 U.S.C. § 103(a), each as set forth in the previous Office action dated May 7, 2002.

Provisional Obviousness-Type Double Patenting Rejections

Each of the claims have been rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over various claims of, independently, U.S. Patent No. 5,985,356 to Schultz *et al.*, and U.S. Patent No. 6,004,617 to Schultz *et al.* (*See* paragraphs 11 and 12 at pages 5-8 of the Office action).

Applicants are submitting herewith a terminal disclaimer with respect to each of the aforementioned patents to obviate these rejections.

Rejections Under 35 U.S.C. § 112, 1st Paragraph

Claim 92 has been rejected under 35 USC §112, 1st paragraph as containing new matter – that is, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that Applicants were in possession of the claimed invention. *See* paragraphs 11-14 at pages 5-7 of the Office action.

This rejection is now moot, since claim 92 is canceled.

Objections re Priority Claim

The Office action objects to the specification with regard to clarification of the relationship between priority applications and updating of the current status thereof.

Applicants have amended the specification to obviate this basis for rejection.

Rejection Under 35 U.S.C. § 112 (Enablement)

Claims 74, 77, 79, 80 and 96-99 are rejected under 35 USC §112, 1st paragraph, as not being enabled with regard to making and screening arrays of non-biological polymeric materials via the claimed methods. In particular, while acknowledging that the invention is enabled for inorganic materials, the Office action posits that the specification does not enable a person of skill in the art to make and use the invention commensurate in scope with these claims, and that there is insufficient guidance regarding making and screening arrays of non-biological polymers via the claimed methods, (*See* paragraph 21 at pages 11-13 of the Office action).

Applicants respectfully traverse this basis for rejection.

Applicants respectfully submit that these claims could be practiced by a person of ordinary skill in the art, based on the teaching of the specification, without undue experimentation.

The invention is directed, *inter alia*, to a method for identifying useful materials by forming ten or more different *composite materials* at discrete regions of a substrate, screening the composite materials, and determining the relative performance of the different composite materials. The composite materials can be inorganic or *non-biological polymeric materials*, and in any case, each of the materials are formed by (i) delivering a first component of the composite material to the respective predefined discrete region of the substrate to form a first solid layer of the first component on the substrate, (ii) delivering a second component of the composite material to the respective predefined discrete region to form a second solid layer of the second component on the first layer, and (iii) varying the composition, concentration, stoichiometry or thickness of the delivered first or second components between respective regions.

The specification defines "composite materials" as comprising a combination of two materials differing in form or composition on a macroscale. (*See* page 17 at lines 1-2 of the specification). As such, practicing the particular invention defined by claim 74 where the composite materials comprise non-biological polymers could involve, for example, forming composite polymer materials at discrete regions, each composite polymer material comprising at least two layers of polymeric materials, such as a first polymer layer and a second polymer layer, which differ in form or composition on a macroscale as compared between layers within a given material. Also, either the first polymer layer and/or second polymer layer is varied with respect to composition, concentration, stoichiometry or thickness as compared between regions.

Significantly, a person of ordinary skill in the art could practice the present invention without having any knowledge of underlying polymerization chemistries *per se,* since the claim does not require *polymerization* of monomers to form such layers, but rather, could be readily practiced by delivery of layers of *pre-existing (e.g., purchased) polymers* onto discrete regions of a substrate. The technique for forming layers of non-biological polymers are expressly taught in Applicants' invention – for example, by delivering the polymer components of the composite as solids (*e.g.*, by placing of polymer sheets, by dispensing of powders, *etc.*), or by liquid dispensing or spraying (*e.g.*, of polymer melts or polymer solutions or dispersions, with subsequent drying or curing). Although the claim allows for *in-situ* polymerization as a means of practicing the invention, a person of ordinary skill in the art would have recognized that Applicants' invention does not require *new* polymerization techniques, but rather, represents a new *format* with which existing polymerization approaches can be applied. That is, the *nature* of Applicants' invention relates to a particularized format for preparing and in some embodiments also screening composite materials. The invention involves substrate-based protocols for investigating (*e.g.*, discovering and/or optimizing) composite materials involving non-biological polymers – generally, and without regard to particular polymerization chemistries or to particular polymers. A skilled artisan would have recognized, therefore, that the invention can be effected with existing, known polymers, and/or existing known polymerization chemistries.

Contrary to assertions made in the Office action, the specification provides substantial guidance with respect to the defining features of the invention, as claimed – the delivery of diverse polymers and/or the preparation of diverse polymeric materials, in a spatially addressable, common-substrate format. With reference to the specification, an overview of general and specific approaches is provided (*See* page 12, line 1 through page 17, line 4 of the specification), together with specific details regarding various component-delivery approaches. Relevant to component delivery of pre-formed polymeric materials, substantial discussion is presented regarding both solid and liquid delivery approaches. Relevant to component delivery involving *in-situ* polymerization, both gas-phase chemical processes and liquid-phase chemical processes and deposition techniques are disclosed in significant detail. These techniques are particularly suited to delivery of monomers, including delivery techniques for solution-phase monomers (*e.g.* with a dispenser), and are expressly taught as being suitable for delivery of non-biological polymeric components. (*See*, for example, page 29, line 24 through page 36, line 12

of the specification.) The specification also describes various approaches for isolation of predefined regions (*See*, for example, page 17, line 6 through page 22, line 6 of the specification). Reaction of monomers and optionally other delivered components is also particularly described with respect to non-biological polymeric materials. (*See*, for example, page 38, line 27-33 of the specification). Various reaction protocols that are particularly effective in connection with bulk polymerization reactions, such as stirring and/or pressurizing and/or heating during the reaction, are likewise disclosed. (*See*, for example: page 36, lines 17-21 and page 37, lines 25-28 (heating); page 36, lines 25-30 (mixing); and page 37, lines 23-25 (pressurizing)). Intermittent reaction processing steps are likewise disclosed. (*See*, for example, page 37, line 29 through page 38, line 3. A person of ordinary skill in the art that such intermittent processing steps could be of particular relevance with respect to forming composites by delivering layers of preformed polymers. The specification further teaches that the arrays of non-biological polymeric materials can be screened according to many specifically-known techniques for specifically-known properties of interest. (*See*, for example, page 39, line 6 through page 43, line 31 of the specification).

In view of such guidance, especially when coupled with the vast warehouse of knowledge existing in the art related to delivery of polymer films (*e.g.*, using mechanical blades, spraying or other coating techniques) and/or related to specific polymerization reactions of interest,[1] a person of ordinary skill would have been enabled to apply Applicants' teaching to carry out the invention defined by claim 74 without undue experimentation.

The rational set forth in the Office action appears misapply the factors set forth in *In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988) for analysis of whether a person of ordinary skill in the art would have been able to practice Applicants invention without undue experimentation. For example, the Office action has considered the *breadth of the claims*, but appears to have given less consideration to the *nature of the invention*. In this regard, a person of ordinary skill in the art would have appreciated that the invention defined by the instant claims relates to a protocol involving a format for preparing and screening arrays of non-biological organic polymers – that is completely general to, and independent of, the particular types of polymers, and as discussed

[1] It is well settled that the specification must be considered in view of that which is already known in the art, and as such, that Applicants need not describe, and preferably omit, that which is well known in the art. *See* Hybritech, Inc. v. Monoclonal Antibodies, Inc., 231 USPQ 81 (Fed. Cir. 1986).

above, can in fact be practiced without any underlying knowledge of polymerization chemistries and/or polymerization reactions. Accordingly, the concerns expressed in the Office action relating to the scope of the polymer structure and to the inherent uncertainty of polymerization chemistries and reactions is misplaced in this instance. Moreover, to the extent that there is some unpredictability regarding which composite structures would be of interest for any particular property, it is the inherent unpredictability in the art that makes Applicants' invention particularly useful – because it provides a protocol and format that offers significant advantages for investigating polymers and polymerization reactions. Further, considered factually, the Office's position is misplaced in view of the *state of the art* (acknowledged as being highly developed for polymerization), the *level of skill in the art* (acknowledged as being relatively high) and the *level of guidance* provided in the specification. In this latter aspect, the Office action appears to selectively focus on certain aspects of the claim (*e.g.*, polymer structure and polymerization *per se*), while disregarding other significant and characterizing aspects of the claims (*e.g.*, forming layers of polymer materials, whether preformed polymers or *in-situ*-synthesized polymers, in an array format) for which substantial *guidance* is clearly provided in the specification – as discussed above. Hence, complete and accurate consideration of the *In re Wand* factors clearly demonstrate that a skilled person could practice the instant inventions without undue experimentation.

Further, the asserted need for a broad range of examples that demonstrate the use of Applicants invention across a broad range of polymerization reactions is likewise misplaced – both legally and factually. The law explicitly holds that "(n)othing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples. *In re Marzocchi,* 169 USPQ 367, 369 (CCPA 1971).

For the reasons set forth above, Applicants respectfully request that this basis for rejection be withdrawn.

Rejection Under 35 U.S.C. § 112 (Indefiniteness)

Claim 72 and claims depending therefrom have been rejected under 35 USC §112, 2nd paragraph, as being indefinite for lacking antecedent basis re "at least ten different materials". (*See* paragraph 23 at page 14 of the Office action).

Applicants have amended claim 72 to obviate this basis for rejection.

Equivalents

The amendments to the claims and the arguments presented in supplemental response to the Office action have been made to claim subject matter which the Applicants regard as their invention. By such amendments, the Applicants in no way intend to surrender any range of equivalents beyond that which is needed to patentably distinguish the claimed invention as a whole over the prior art. Applicants expressly reserve patent coverage to all such equivalents that may fall in the range between applicants literal claim recitations and those combinations that would have been obvious in view of the prior art. In particular, as noted above, none of the claims have been narrowed within the meaning of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 62 USPQ2d 1705 (2002), and Applicants are therefore entitled to the full range of equivalents with respect to each of the presently-pending claims.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Applicants believe that no further fees are required in connection with the instant amendment. If necessary, however, the Examiner is hereby authorized to charge any fees required in connection with this application to Deposit Account No. 50-0496.

Respectfully submitted,

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